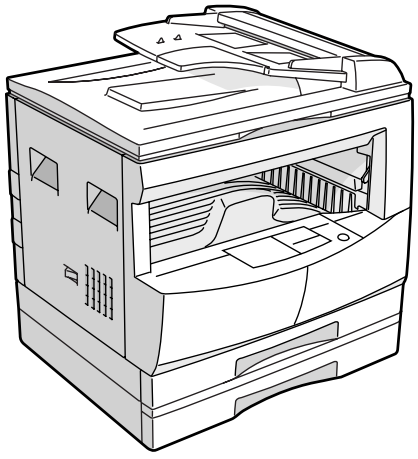
SHARP SERVICE MANUAL

CODE: 00ZAL1670/A1E



DIGITAL COPIER

AL-1640
AL-1650
MODEL AL-1670

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Parts marked with "⚠" are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

SHARP CORPORATION

This document has been published to be used for after sales service only.
The contents are subject to change without notice.

Warning!
This product is a class A product.
If it is operated in households, offices or similar surroundings, it can produce radio interferences at other appliances, so that the user has to take adequate countermeasures.

CLASS 1 LASER PRODUCT

LASER KLASSE 1

LUOKAN 1 LASERLAITE

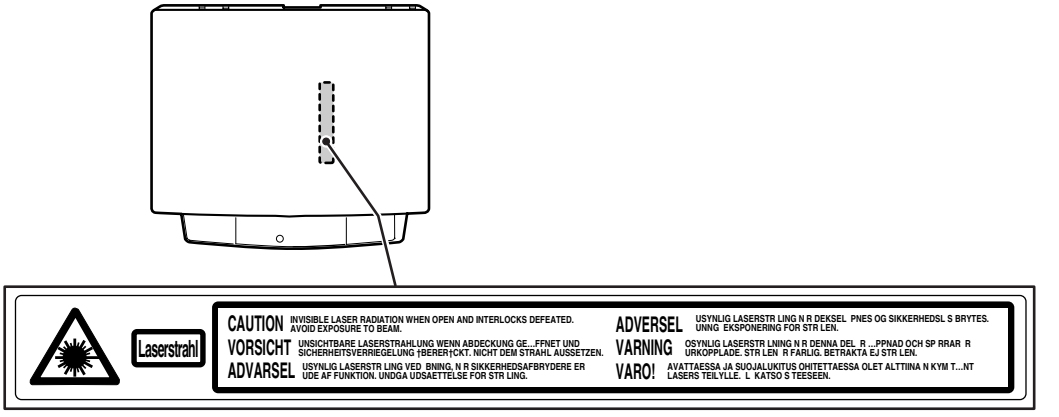
KLASS 1 LASERAPPARAT

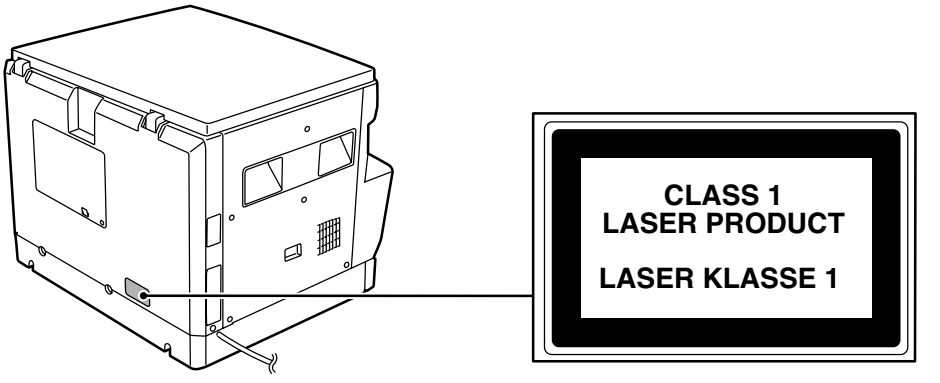
VAROITUS!

LAITTEEN KÄYTTÄMINEN MUULLA KUIN TÄSSÄ KÄYTTÖOHJEESSA MAINITULLA TAVALLA SAATTAA ALTISTAA KÄYTTÄJÄN TURVALLISUUSLUOKAN 1 YLITTÄVÄLLE NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE.

VARNING

OM APPARATEN ANVÄNDS PÅ ANNAT SÄTT ÄN I DENNA BRUKSANVISNING SPECIFICERATS, KAN ANVÄNDAREN UTSÄTTAS FÖR OSYNLIG LASERSTRÅLNING, SOM ÖVERSKRIDER GRÄNSEN FÖR LASERKLASS 1.


Laserstrahl
CAUTION INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED. AVOID EXPOSURE TO BEAM.
VORSICHT UNSICHTBARE LASERSTRAHLUNG WENN ABDECKUNG GE...FFNET UND SICHERHEITSVERRIEGELUNG †BERBR†CKT. NICHT DEM STRAHL AUSSETZEN.
ADVARSEL USYNLIG LASERSTR LING VED BNING, N R SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGA UDSAETTELSE FOR STR LING.
ADVERSEL USYNLIG LASERSTR LING N R DEKSEL PNES OG SIKKERHEDSL S BRYTES. UNNG EKSPONERING FOR STR LEN.
VARNING OSYNLIG LASERSTR LNING N R DENNA DEL R ...PPNAD OCH SP RRAR R URKOPPLADE. STR LEN R FARLIG. BETRAKTA EJ STR LEN.
VARO! AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA N KYM T...NT LASERS TEILYLLE. L KATSO S TEESEEN.



Disconnect the AC cord before servicing the unit.

[1] INTRODCUTION

This machine is an upgrade model of the digital copier, AL-1610.
Therefore this Service Manual describes only the different points from the AL-1600/1610 and the AL-1620/1621 and some supplementary items. For the items which are not described in this Service Manual, refer to the Service Manual and the Parts Guide of the AL/1600/1610 and the AL-1620/1621.

[2] DIFFERENT POINTS FROM THE AL-1600 SERIES

For details of specifications, refer to the basic specifications later.

	AL-1600	AL-1610	AL-1620	AL-1621	AL-1640	AL-1650	AL-1670
Copy speed	16sheets/min	16sheets/min	16sheets/min	16sheets/min	16sheets/min	16sheets/min	16sheets/min
Paper feed tray	1step + MB	1step + MB	1step + MB	2step + MB	1step + MB	2step + MB	2step + MB
Duplex print	Not available	Not available	Not available	Not available	Not available	Not available	Not available
Shifter (Offset paper exit)	Not available	Not available	Not available	Not available	Not available	Not available	Standard provision
Page memory	None	Standard provision (10MB)	Standard provision (10MB)	Standard provision (10MB)	Standard provision (10MB)	Standard provision (10MB)	Standard provision (E-Sort PWB)
Scan one Print multi	No	Standard provision *1	Standard provision *1	Standard provision *1	Standard provision *1	Standard provision *1	Standard provision
Original detection (Platen)	No	No	No	No	No	No	No
Electric Sort	No	No	No	No	No	No	Standard provision
SPF	No	No	Standard provision	Standard provision	No	Standard provision	Standard provision
APS	No	No	Available ∗2	Available ∗2	Available ∗3	Available ∗2	Available ∗2
AMS	No	No	Available ∗2	Available ∗2	Available ∗3	Available ∗2	Available ∗2
Independent Zooming	No	No	Available	Available	Available	Available	Available
1 set 2 copy	No	No	Available	Available	Available	Available	Available
Black-white reversion	No	No	Available	Available	Available	Available	Available
Auto tray switching	No	No	No	Available	No	Available	Available
LCD Display	No	No	No	No	Standard provision	Standard provision	Standard provision
Printer Function (PCL6)	No	No	No	No	Standard provision	Standard provision	Standard provision
Printer function (PS2)	No	No	No	No	No	No	No

∗1 Paper exit style: Group only, sort not available.
∗2 APS/AMS: The document size input is required when reading the OC, only when reading the SPF.
∗3 APS/AMS: The document size input is required.
∗4 AL-1620/1640: APS default OFF

[3] SPECIFICATIONS

1. Copy mode

A. Type

Type	Desk-top

B. Copy speed

(1) Basic speed

	16 sheets/min
Scan One Print Multi	Available

Condition: Copy speed in the normal copy from all the paper feed ports including the manual paper feed port.

(2) Continuous copy speed (Sheets/min)

Paper size	Normal	Enlargement (200%)	Reduction (50%)
11" × 17"	9	9	9
8.5" × 14"	10	10	10
8.5" × 13"	10	10	10
8.5" × 11"	16	16	14
8.5" × 11R"	12	12	12
8.5" × 5.5"	16	16	16

C. First copy time

First copy time	7.2 sec (11" × 8.5", 1st cassette, with OC)

D. Document

Max. document size	11" × 17"
Document reference position	Left side center
Detection (Platen)	None
Detection size (SPF)	11" × 17", 8.5" × 14", 8.5" × 11", 8.5" × 11"R, 8.5" × 5.5"

(1) SPF

Standard/Option	Standard provision for AL-1650/1670 Not available for AL-1640
Document load capacity	30 sheets (56 ~ 90 g/m^2 15 ~ 23.9 lbs equivalent)
Document size (Max. ~ Min.)	11" × 17" ~ 8.5" × 5.5"
Document replacement speed	16 sheets/min (11" × 8.5" normal copy)
Document set/Paper feed direction	Face up, Center reference, Paper feed from the top
Document weight	56 ~ 90 g/m^2, 15 ~ 23.9 lbs
Document size detection	On the document feed tray
Document mixture	Not Available

E. Paper feed

Copy size (Max. ~ Min.)	Cassette: 11" × 17" ~ 8.5" × 5.5"	
Paper feed system	AL-1640	1 cassette + Multi bypass tray
	AL-1650/1670	2 cassette + Multi bypass tray
Paper feed capacity (50 ~ 80 g/m^2 equivalent)	AL-1640	250 × 1 (cassette) + 100 (Multi bypass tray)
	AL-1650/1670	250 × 2 (cassette) + 100 (Multi bypass tray)
Remaining quantity detection	Cassette	Empty detection available
	Manual tray	Empty detection available

(1) Paper tray section

Paper feed size	11" × 17", 8.5" × 14", 8.5" × 11", 8.5" × 11"R, 8.5" × 5.5"
Side front	Front
Paper feed capacity	250 sheets (56 ~ 80 g/m^2 15 ~ 21 lbs equivalent)
Detection	Paper empty detection available, size detection (by key input)
Weight	56 ~ 80 g/m^2 15 ~ 21 lbs
Special paper	Recycled paper

* For 8.5" × 5.5", tray 1 only.

(2) Manual paper feed section

Paper feed size	11" × 17" ~ 8.5" × 5.5"
Paper feed capacity	100 sheets
Detection	Size detection not available, paper empty detection available
Weight	56 ~ 128 g/m^2 15 ~ 34 lbs
Special paper	Recycled paper, OHP film, labels
Paper feed	Single except for recycled paper

(3) Optional paper feed unit

	1-step paper feed unit	2-step paper feed unit
Standard/Option	Not available	Not available

F. Multi copy

Max. number of multi copy	99 sheets

G. Warmup time

Warmup time	Approx. 35 sec (Condition: Standard condition)
Pre-heat	Available

H. Copy magnification ratio

Fixed magnification ratio	50, 64, 77, 95, 100, 121, 129, 141, 200%
Zooming	50 ~ 200%

I. Print density

Density mode	Auto/Manual/Photo
No. of manual adjustment	5 steps (Manual/Photo)
Toner save mode	Set by the user program

J. Void width

Void area	Lead edge 1 ~ 4 mm, rear edge 4 mm or less, both side 4 mm or less When using SPF: 6 mm or less
Image loss	Max. 5/32" (4 mm) (leading and trailing edges) Max. 5/32" (4 mm) (along other edges in total)

K. Auto duplex

Standard/Option	Not installable

L. Paper exit/finishing

Paper exit section capacity	Face down 250 sheets
Job separator	Not available
Full detection	Not available
Finishing	Electronic sort board: Standard provision for AL-1670 Not available for AL-1640/1650
Offset function	Available for AL-1670 Not available for AL-1640/1650
Staple function	Not available

M. Additional functions

	AL-1640/ 1650	AL-1670	
APS	○	○	
AMS	○	○	
Duplex	×	×	
Document count	×	×	
Sorter	×	○	By E-Sort
Independent zooming	○	○	
1 set 2 copy	○	○	
Binding margin	×	○	
Edge erase	×	○	
Black-white reversion	○	○	
2 in 1, 4 in 1	×	○	
Rotation copy	×	○	
Memory copy	○	○	
Pre-heat function	○	○	Condition set by the user program
Auto power shut off	○	○	Condition set by the user program
Auto tray switching	●	○	Not available for AL-1640
Message display	○	○	Printer condition only
User program	○	○	
Total counter	○	○	

○ : Available × : Not available

N. Machine composition

(1) Supply parts

Part name	
Toner/developer cartridge	AL-160-TD-B
Drum cartridge	AL-160-DR

O. Other specifications

Photoconductor type	OPC (Organic Photo Conductor)
Photoconductor drum dia.	30 mm
Copy lamp	Xenon lamp
Developing system	Dry 2-component magnetic brush development
Charging system	Saw teeth charging
Transfer system	(+) DC corotoron
Separation system	(–) DC corotoron
Fusing system	Heat roller
Cleaning system	Contact blade

P. Package form

Body	Body/Accessories

Q. External view

External dimensions (W × D × H)	AL-1640	590 × 526 × 566 mm
	AL-1650/ 1670	590 × 526 × 654 mm
Occupying area (W × D)	590 × 526 mm (When the manual tray is installed.)	
Weight	AL-1640	Approx. 37 kg
	AL-1650/ 1670	Approx. 42 kg

R. Power source

Voltage	AC120 V ± 15%
Frequency	60 Hz

S. Power consumption

Max. power consumption	About 1.5 KWh

* Energy Star standard (The second level conformity)

Pre-heat	About 60 Wh
Auto power shut off	About 4.8 Wh

T. Noise

Noise	BA standard

U. Digital performance

Resolution	Reading	400 dpi
	Writing	600 dpi
Gradation	Reading	256 gradations
	Writing	Binary

2. Printer mode

A. Basic specifications

Item	Contents	
Print speed	16 PPM	
Resolution	600 dpi, 300 dpi (1,200 dpi equivalent by smoothing)	
Toner save	Available	
Duplex print	Available (Only in the model with duplex function)	
Paper feed tray	Multi bypass tray Tray 1, Tray 2	
Paper size	Multi bypass tray	A3, B4, A4R, B5R, A5R, 11" × 17", 8.5" × 14", 8.5" × 11"R, 8.5" × 5.5"R, 8.5" × 13", 8.3" × 13", 7.25" × 10.5"R, DL, C5, COM10
Paper size	Tray 1 ~ 2*	11" × 17", 8.5" × 14", 8.5" × 11", 8.5" × 11"R, 8.5" × 5.5" *2, 8.5" × 13"
Paper exit	Face down system	
Shifter	Available (only AL-1670)	
Page description language (standard)	PCL6 emulation PCL5e emulation	
Dot emulation	None	
Page protection function	Not Available	
Interface	IEEE1284 port	Compatibility mode
		Nibble mode
Interface cable	Use IEEE1284 conforming parallel cable. (shielded and grounded)	
	Max. length	Within 3.0 m
Emulation select	Auto	
Plug and play	Conforming (only with Windows 95/98)	
Printer driver	Microsoft Windows 3.1	Available
	Microsoft Windows 95	Available
	Microsoft Windows 98	Available
	Microsoft Windows NT4.0	Available
Built-in fonts	Outline 45 fonts (PCL6 compatible)	
Screen font	Outline 31 fonts (PCL6 compatible) for Windows	
Memory	Standard	
Conforming PC	IBM PC-AT compatible	

*: Only AL-1650/1670

*2: Tray 1 only

B. Printer driver specifications

(1) System

	OS	PCL
IBM PC/AT	Microsoft Windows 3.1	Available
	Microsoft Windows 95	Available
	Microsoft Windows 98	Available
	Microsoft Windows NT4.0	Available

(2) Kinds of printer drivers

Printer driver name	Name on PC screen
PCL5e for Windows 3.1/95/98	SHARP AL-1600 Series PCL5e
PCL5e for Windows NT4.0	
PCL6 for Windows 95/98	SHARP AL-1600 Series PCL6
PCL6 (PCL XL) for Windows NT4.0	

(3) Set content

Item		PCL6	PCL5e
Copies		1 to 999	
Orientation		Portrait, Landscape	
Document Style		1-Sided	
Paper Source		Auto, Tray 1, Tray 2, Bypass Tray	
Paper Size		A3 (297 × 420 mm), B4 (257 × 364 mm), A4 (210 × 297 mm), A5 (148 × 210 mm), B5 (182 × 257 mm), Ledger (11" × 17"), Letter (8.5" × 11"), Legal (8.5" × 14"), Executive (7.25" × 10.5"), Folio (8.3" × 13"), Invoice (5.5" × 8.5"), Foolscap (8.5" × 13"), DL, C5, COM10, Custom Paper	
N-Up Printing		1-Up, 2-Up, 4-Up	
Border		On, Off	
Fit to Page		On, Off	
Toner Save Mode		On, Off	
Smoothing		On, Off	
Resolution Settings		600 dpi, 300 dpi	
Graphics Mode		HP-GL/2 (Vector), Raster	
Half Tone		Photo Images, Line Art, Scanned Images	
Font Source		Resident Fonts, Download Fonts	
True Type Mode		Download as True Type, Download as bitmap font, Print as graphics	
Input Tray		One Tray, Two Trays	
Installed RAM		8MB	
Set content of custom paper	Unit	0.01", 0.1 mm	
	Width	1000 to 2969 (In the case of 0.1 mm) 394 to 1169 (In the case of 0.01")	
	Length	1480 to 4318 (In the case of 0.1 mm) 583 to 1700 (In the case of 0.01")	

Item		PCL6	PCL5e
Set content of water mark	Position	Depends on the paper size. MAX Short –5.84" ~ 5.84" Long –8.5" ~ 8.5"	
	Size	6 ~ 900	
	Angle	±90˚	
	Text	TOP SECRET CONFIDENTIAL DRAFT ORIGINAL COPY	
	Edit Fonts	Refer to the following Font List.	
	Edit Density	0 ~ 255	
	Transparent Text	Yes, No	
	On First Page Only	Yes, No	
	As Outline Only	Yes, No (Only when Transparent Text is OFF.)	

(4) Dispaly

a. LCD message

Status	LCD display		Content
Online	Online	AUTO	Auto select to emulation
		PCL	PCL
		HEX	HEX
Error	Data Loss Error	Press ENTER	
	Memory Full	Press ENTER	
	Out of paper	Tray 1 <Paper Size>	When the paper feed tray is selected to other than AUTO.
		Tray 2 <Paper Size>	
		Bypass <Paper Size>	
		Tray <Paper Size>	When the paper feed tray is selected to AUTO.
	Check Panel		Toner empty Drum replacement Cover open Service call error
	Clear Paper Path		Paper jam Paper exit tray full
User setting	Main Menu	Copies	Printing of the set quantity is made.
		Resolution	Printing at the set resolution is made.
		Smoothing	Smoothing function setting.
		Toner Save	Toner save mode setting
		Paper Source	Tray select
		Paper Size	Paper size select
		Orientation	Setting of print direction
		Emulation	Emulation setting

Status	LCD display		Content
User setting	Interface Menu	I/O Time Out	If data reception is not completed within the set time, it is judged as a time out error.
	Test Printing Menu	Configuration Page	Configuration page is printed.
		PCL Font Page	PCL6 Font page is printed.

b. LED display

ON LINE light	Extinguished	Indicates that the printer is off-line and data cannot be transferred or printed. Make settings from the operation panel in this mode. Note, however, that you cannot make settings if the “Data Remaining” message is displayed.
	Lit	Indicates that the printer is on-line and data can be transferred and printed.
DATA light	Extinguished	Indicates that there is no data being received or processed.
	Lit	Indicates that the printer is receiving or processing print data.
	Blinking	Indicates that there is print data remaining in memory that has not yet been printed.

c. Operation keys

LINE key	Changes between the on-line and off-line modes. When the printer is on-line, it can receive data from the computer with which it is connected. When the printer is off-line, you can use operation panel keys to make print settings. Note, however, that you cannot make settings if the "Data Remaining" message is displayed.
MENU key	Used to show setting menus on the display in sequence.*
ITEM key	Used to show the setting items of the selected menu in sequence.*
Left arrow key Right arrow key	Used to change the value of any item.*
ENTER key	Used to enter a new value.

* Invalid when the printer is on-line.

(5) PC environment

Computer Type	IBM PC/AT or compatible computer equipped with a bi-directional parallel interface and CD-ROM drive
Operating System	Windows 3.1, Windows 95, Windows 98, Windows NT4.0
CPU	Windows 95/3.1 : 486SX or better Windows 98 : 486DX/66MHz or better (Pentium or better is recommended.) Windows NT4.0 : 486/25MHz or better
RAM	Windows 95/3.1 : 8MB or more (12MB or more is recommended.) Windows 98 : 16MB or more (32MB or more is recommended.) Windows NT4.0 : 16MB or more

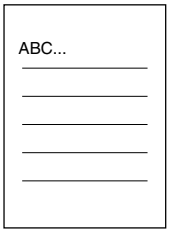
(6) Paper handling specifications

a. Paper feed direction

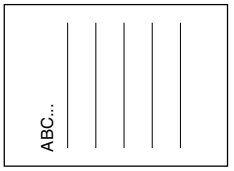
1) Paper size and image transport direction

Paper Size	Side set to the paper feed port
A3	Short side
B4	Short side
A4	Long side
A4R	Short side
B5	Long side
B5R	Short side
A5	Long side
A5R	Short side
Ledger	Short side
Legal	Short side
Letter	Long side
LetterR	Short side
Invoice	Long side
InvoiceR	Short side
Foolscap	Short side
Folio	Short side
Executive	Short side
COM-10	Short side
C5	Short side
DL	Short side

Side set to the paper feed port = Long side



Side set to the paper feed port = Short side



For paper feed of the multi bypass tray, the short side must be set to the paper fed port regardless of paper size for making print data.

b. Paper feed port

Tray kind	Bypass Tray	Tray 1	Tray 2
Capacity	100 sheets	250 sheets	250 sheets
A3	○	○	○
B4	○	○	○
A4		○	○
A4R	○	○	○
B5		○	○
B5R	○	○	○
A5		○	
A5R	○		
Ledger	○	○	○
Legal	○	○	○
Letter		○	○
LetterR	○	○	○
Invoice		○	
InvoiceR	○		
Foolscap	○	○	○
Folio	○		
Executive	○		
COM-10	○		
C5	○		
DL	○		
Custom	○		

* The number of trays supported depends on each model.
* When printing with the multi bypass tray, the printer board cannot recognize the set paper direction, and therefore it regards that the short side of paper would be set (vertical transport direction) to make data.

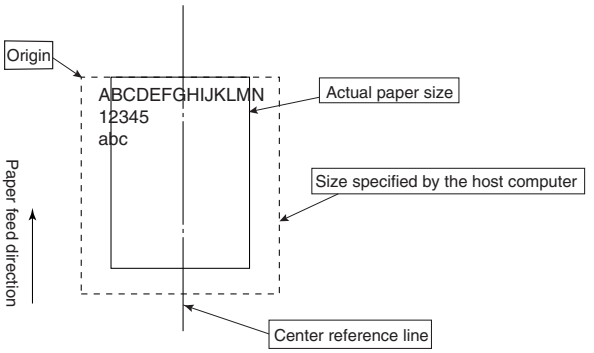
C. Tray selection

Paper handling is controlled on the copier side. The printer board sends the Video I/F command to the digital copier according to the computer direction of the tray.

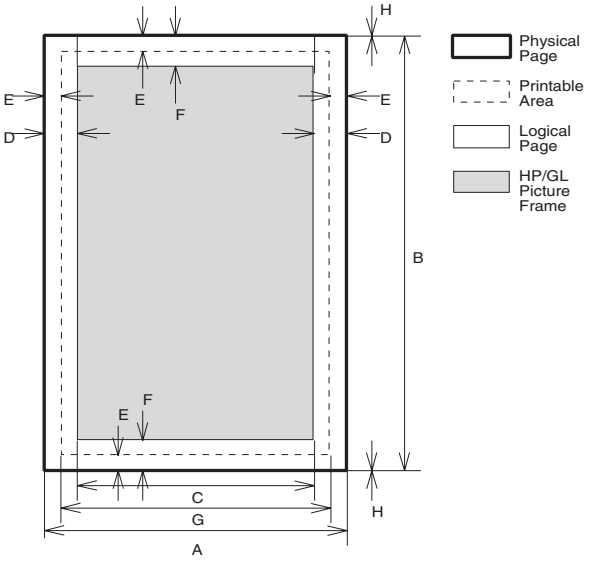
(7) Print reference

This machine employs the center reference system.

Since the digital copier is not equipped with the paper size detection, format is made not by the actual paper size but by the paper size specified by the computer, and center distribution is made.

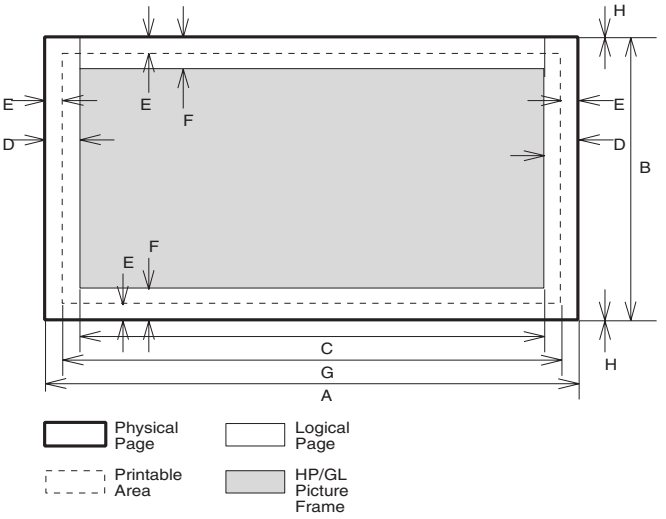


(8) Print Area



Paper size	A	B	C	D	E	F	G	H
A3	7014	9920	6730	142	100	300	6814	0
B4	6070	8597	5786	142	100	300	5870	0
A4	4960	7014	4676	142	100	300	4760	0
B5	4298	6070	5770	142	100	300	4098	0
A5	3508	4960	3224	142	100	300	3308	0
Ledger	6600	10200	6300	150	100	300	6400	0
Legal	5100	8400	4800	150	100	300	4900	0
Letter	5100	6600	4800	150	100	300	4900	0
Invoice	3300	5100	3000	150	100	300	3100	0
Foolscap	5100	7800	4800	150	100	300	4900	0
Folio	4980	7800	4680	150	100	300	4780	0
Executive	4350	6300	4050	150	100	300	4150	0
COM-10	2474	5700	2174	150	100	300	2274	0
C5	3826	5408	3542	142	100	300	3626	0
DL	2598	5196	2314	142	100	300	2398	0

(Unit: Dots/600DPI)



PAPER SIZE	A	B	C	D	E	F	G	H
A3	9920	7014	9684	118	100	300	9720	0
B4	8597	6070	8361	118	100	300	8397	0
A4	7014	4960	6778	118	100	300	6814	0
B5	6070	4298	5830	118	100	300	5870	0
A5	4960	3508	4720	118	100	300	4760	0
Ledger	8400	5100	8160	120	100	300	8200	0
Legal	8400	5100	8160	120	100	300	8200	0
Letter	6600	5100	6360	120	100	300	6400	0
Invoice	5100	3300	2860	120	100	300	4900	0
Foolscap	7800	5100	7560	120	100	300	7600	0
Folio	7800	4980	7560	120	100	300	7600	0
Executive	6300	4350	6060	120	100	300	6100	0
COM-10	5700	2474	3460	120	100	300	5500	0
C5	5408	3826	5172	118	100	300	5208	0
DL	5196	2598	4960	118	100	300	4996	0

(Unit: Dots/600DPI)

* Top Margin

The set value is received from the digital copier and data are made according to the set value.

* Left margin

Since the paper size sensor is not set, the digital copier does not know the size and direction of paper inserted. Therefore, the left margin is set according to the paper size indicated by the print data sent from the computer, and printing is made. If the computer does not specify the paper size or in the case of custom size, the left margin is set according to the default paper size.

(9) Font

a. For PCL

TrueDoc Format 45 fonts

1 bitmap font

Font No.	Font Name
0	Fixed Pitch 810 Courier Roman SWC
1	Dutch™ 801 SWC
2	Dutch 801 Bold SWC
3	Dutch 801 Italic SWC
4	Dutch 801 Bold Italic SWC
5	Zapf Humanist 601 SWC
6	Zapf Humanist 601 Bold SWC
7	Zapf Humanist 601 Italic SWC
8	Zapf Humanist 601 Bold Italic SWC
9	Ribbon 131 SWC
10	Clarendon 701 Clarendon Condensed SWC
11	Swiss™ 742 SWC
12	Swiss 742 Bold SWC
13	Swiss 742 Italic SWC
14	Swiss 742 Bold Italic SWC
15	Swiss 742 Condensed SWC
16	Swiss 742 Condensed Bold SWC
17	Swiss 742 Condensed Italic SWC
18	Swiss 742 Condensed Bold Italic SWC
19	Incised 901 SWC
20	Incised 901 Bold SWC
21	Incised 901 Italic SWC
22	Aldine 430 Original Garamond SWC
23	Aldine 430 Original Garamond Bold SWC
24	Aldine 430 Original Garamond Italic SWC
25	Aldine 430 Original Garamond Bold Italic SWC
26	Audrey Two SWC
27	Flareserif 821 SWC
28	Flareserif 821 Extra Bold SWC
29	Swiss 721 SWM
30	Swiss 721 Bold SWM
31	Swiss 721 Oblique SWM
32	Swiss 721 Bold Oblique SWM
33	Dutch 801 SWM
34	Dutch 801 Bold SWM
35	Dutch 801 Italic SWM
36	Dutch 801 Bold Italic SWM
37	Symbol SWA
38	Wingbats SWM
39	Fixed Pitch 810 Courier Bold SWC
40	Fixed Pitch 810 Courier Italic SWC
41	Fixed Pitch 810 Courier Bold Italic SWC
42	Fixed Pitch 850 Letter Gothic 12 pitch/text SWC
43	Fixed Pitch 850 Letter Gothic Bold 12 pitch/text SWC
44	Fixed Pitch 850 Letter Gothic Italic 12 pitch/text SWC
45	Line Printer

[4] LIMITATIONS OF ELECTRICAL SORT <AL-1670 only>

Function	Limitations,	
No. of documents to be read	When no page memory (SIMM) is additionally installed (16 MB), about 60 sheets of standard documents can be read. (The number of documents to be read varies depending on image patterns.) When two or more documents are read and the image memory is full, the image data lamp lights up to stop the operation.	<When the operation is stopped with the memory full> To copy the read data: Start key To delete the read data: Clear All key
No. of discharged paper	In sort/group copy, if the number of discharged copy exceeds the following level, the machine stops copying: 250 sheets (This function default is off)	Remove the discharged paper and press the START key to resume copying.
2 in 1/4 in 1 copy	When the reduction ratio of images exceeds 50%, the reduction ratio of 50% is active, resulting in broken images. For each reduction ratio, refer to the table below.	
	Even though rotation copy is canceled (by the user program), rotation copy may be made according to necessity.	
	Unable to combine with the binding margin copy function.	
	Unable to combine with the edge erase copy function.	
Binding margin copy	Unable to combine with 2 in 1/4 in 1 copy.	
	Unable to change the binding position and the binding margin.	
Edge erase copy	Unable to combine with 2 in 1/4 in 1 copy.	

[5] 2 IN 1/4 IN 1 COPY REDUCTION RATIO <AL-1670 only>

When 2 in 1/4 in 1 copy is selected, each image is reduced in the following reduction ratio.

1. 2 in 1 copy

		Paper size				
		11 × 17	8.5 × 14	8.5 × 11	8.5 × 11R	8.5 × 5.5
Document size	11 × 17	61% (11 × 17 → 8.5 × 11) With rotation	50% (11 × 17 → 8.5 × 5.5) With rotation	50% (11 × 17 → 8.5 × 5.5) Without rotation	50% (11 × 17 → 8.5 × 5.5) With rotation	50% Blinking Without rotation
	8.5 × 14	74% (8.5 × 14 → 8.5 × 11) With rotation	58% (8.5 × 14 → 8.5 × 5.5) With rotation	58% (8.5 × 14 → 8.5 × 5.5) Without rotation	58% (8.5 × 14 → 8.5 × 5.5) With rotation	50% Blinking Without rotation
	8.5 × 11	97% (8.5 × 11 → 8.5 × 11) Without rotation	61% (8.5 × 11 → 8.5 × 5.5) Without rotation	61% (8.5 × 11 → 8.5 × 5.5) With rotation	61% (8.5 × 11 → 8.5 × 5.5) Without rotation	50% (8.5 × 11 → 4.25 × 5.5) With rotation
	8.5 × 11R	97% (8.5 × 11 → 8.5 × 11) With rotation	61% (8.5 × 11 → 8.5 × 5.5) With rotation	61% (8.5 × 11 → 8.5 × 5.5) Without rotation	61% (8.5 × 11 → 8.5 × 5.5) With rotation	50% (8.5 × 11 → 4.25 × 5.5) Without rotation
	8.5 × 5.5	126% (8.5 × 5.5 → 8.5 × 11) Without rotation	97% (8.5 × 5.5 → 8.5 × 5.5) Without rotation	97% (8.5 × 5.5 → 8.5 × 5.5) With rotation	97% (8.5 × 5.5 → 8.5 × 5.5) Without rotation	61% (8.5 × 5.5 → 4.25 × 5.5) With rotation

2. 4 in 1 copy

		Paper size				
		11 × 17	8.5 × 14	8.5 × 11	8.5 × 11R	8.5 × 5.5
Document size	11 × 17	50% (11 × 17 → 8.5 × 5.5) Without rotation	50% Blinking Without rotation	50% Blinking With rotation	50% Blinking Without rotation	50% Blinking With rotation
	8.5 × 14	58% (8.5 × 14 → 8.5 × 5.5) Without rotation	50% (8.5 × 14 → 7 × 4.25) Without rotation	50% Blinking With rotation	50% Blinking Without rotation	50% Blinking With rotation
	8.5 × 11	61% (8.5 × 11 → 8.5 × 5.5) With rotation	50% (8.5 × 11 → 4.25 × 5.5) With rotation	50% (8.5 × 11 → 4.25 × 5.5) Without rotation	50% (8.5 × 11 → 4.25 × 5.5) With rotation	50% Blinking Without rotation
	8.5 × 11R	61% (8.5 × 11 → 8.5 × 5.5) Without rotation	50% (8.5 × 11 → 4.25 × 5.5) Without rotation	50% (8.5 × 11 → 4.25 × 5.5) With rotation	50% (8.5 × 11 → 4.25 × 5.5) Without rotation	50% Blinking With rotation
	8.5 × 5.5	97% (8.5 × 5.5 → 8.5 × 5.5) With rotation	61% (8.5 × 5.5 → 4.25 × 5.5) With rotation	61% (8.5 × 5.5 → 4.25 × 5.5) Without rotation	61% (8.5 × 5.5 → 4.25 × 5.5) With rotation	50% (8.5 × 5.5 → 4.25 × 2.75) Without rotation

[6] SIMULATION

1. Entering the simulation mode

Perform the following procedure to enter the simulation mode.
Clear key → Exposure mode select key → Clear key → Exposure mode select key → Main code → Start key → Sub code → Start key

2. Cancelling the simulation mode

When the all clear key is pressed, the simulation mode is cancelled. When the interruption key is pressed, the process is interrupted and the screen returns to the sub code entering display.

3. List of simulations

Main code	Sub code	Contents	*
1	1	Mirror unit operation check	
	2	Optical system sensor operation check	
2	1	SPF aging	B
	2	SPF sensor operation check	B
	3	SPF motor forward rotation operation check	B
	4	SPF motor reverse rotation operation check	B
	8	SPF paper feed solenoid operation check	B
	9	RSPF reverse solenoid operation check	A
	10	RSPF paper exit gate solenoid operation check	A
	11	SPF PS release solenoid operation check	B
3	2	Shifter job separator sensor operation check	D
	3	Shifter operation check	D
	4	Job separator operation check	A
	11	Shifter home position check	D
5	1	Operation panel display check	
	2	Heater lamp lighting check, cooling fan motor operation check	
	3	Copy lamp lighting check	
6	1	Paper feed solenoid operation check	
	10	Main cassette semi-circular roller drive	
7	1	Aging with warmup time display	
	4	Warmup saving	
	6	Intermittent aging	
	8	Warmup time display	
9	1	Duplex motor forward rotation operation check	A
	2	Duplex motor reverse rotation operation check	A
	4	Duplex motor rotation speed adjustment	A
	5	Duplex motor switchback time adjustment	A
10		Toner motor operation check	
14		Trouble (except for U2) cancel	
16		U2 trouble cancel	
20	1	Maintenance counter clear	A
21	1	Maintenance cycle setting	A
	2	Mini maintenance cycle setting (Japan only)	A
22	1	Maintenance counter display	A
	2	Maintenance preset value display	A
	3	JAM memory display	
	4	Total JAM counter display	
	5	Total counter display	
	6	Developing counter display	A
	7	Developing preset counter value display (Japan only)	A
	8	SPF counter display	B
	9	Paper feed counter display	
	12	Drum counter display	
	14	Copier ROM version display	
	15	Trouble memory display	
	16	Duplex print counter display	A
	17	Copy counter display	
	18	Printer counter display	C
	19	Electronic sort counter display	D
	20	FAX print counter display	A
	21	Scanner counter display	
24	1	JAM memory, JAM counter clear	
	2	Trouble memory clear	
	4	SPF counter clear	B
	5	Duplex counter clear	A
	6	Paper feed counter clear	
	7	Drum counter clear	
	8	Copy counter clear	
	9	Printer counter clear	C
	10	Electronic sort counter clear	D
	11	FAX print counter clear	A
	13	Scanner counter clear	
25	1	Main motor operation check	
	10	Polygon motor operation check	
26	1	Option switch display	
	3	Auditor setting	
	5	Counter mode setting	
	6	Destination setting	
	10	Model name setting	
	22	Language setting	
	30	CE mark conformity control setting	
	32	Fan rotation duty change state setup	
	38	Cancel of stop at dram life over	A
	42	Transfer timing adjustment	
	50	Black-white reversion function setup	B
	51	Sort/Group copy temporary stop function setup	D
30	1	Machine sensor operation check	
41	2	OC document sensor adjustment	A
	3	Document sensor light reception level display	A
42	1	Developing counter clear	A
43	1	Fusing temperature setting	
46	1	Copy density level adjustment	
	2	FAX density level adjustment	A
48	1	Main scanning (front/rear) direction magnification ratio adjustment (Copy/FAX/OC-SPF common)	
	2	OC mode sub scanning direction magnification ratio adjustment in copying	
	5	SPF mode sub scanning direction magnification ratio adjustment in copying	B
	6	OC mode sub scanning direction magnification ratio adjustment in FAX	A
	7	SPF mode sub scanning direction magnification ratio adjustment in FAX	A
50	1	Copy image lead edge position adjustment	
	10	Paper off center adjustment	
	13	OC mode document off center adjustment	
	16	SPF mode document off center adjustment	B
	18	Duplex memory reverse position adjustment	A
	19	RSPF rear edge void adjustment	B
51	2	Resist amount adjustment	
63	1	Shading data check	
64	1	Self printing mode	
67	14	Printer Flash ROM Data Download	C

*A: Not used in the AL-1600/1610/1620/1621 and AL-1640/1650/1670.
B: Can be used only in the AL-1620/1621 and AL-1650/1670.
C: Can be used only in the AL-1640/1650/1670.
D: Can be used only in the AL-1670.

4. Contents of simulations

<table>
<tr><th>Main code</th><th>Sub code</th><th>Contents</th><th>Details of operation</th><th>Initial value</th><th>Set range</th></tr>
<tr><td>3</td><td>11</td><td>Shifter Home Position Check

<Used only in the AL-1670></td><td>Used to drive the shifter motor<table><tr><th>Key operation</th></tr><tr><td>Feed: Exposure up key
Return: Exposure down key
Moved to Home Position: Magnification ratio display key</td></tr></table></td><td></td><td></td></tr>
<tr><td rowspan="2">50</td><td>18</td><td>Duplex memory reverse position adjustment

<Not used></td><td>After completion of warmup, shading is performed and currently set value is displayed<table><tr><th>Key operation</th></tr><tr><td>Memory reverse position adjustment value:
Copy quantity keys</td></tr></table></td><td>58</td><td>1 ~ 99</td></tr>
<tr><td>19</td><td>Duplex rear edge void adjustment

<Used only in the AL-1620/1621 and AL-1650/1670></td><td>After completion of warmup, shading is performed and currently set value is displayed.<table><tr><th>Key operation</th><th>Display</th></tr><tr><td>Adjustment mode select:
Exposure mode select key
Set value: Copy quantity keys</td><td>Auto: SPF/R-SPF rear edge void
Manual: R-SPF off center <Not used>
Photo: R-SPF lead edge void <Not used></td></tr></table></td><td>50</td><td>1 ~ 99</td></tr>
</table>

[7] TROUBLE CODE LIST

This chapter is commonly used with the AL-1600 Series.

1. Trouble code list

Trouble code		Trouble content	Remark
E1	00	ERDH board communication trouble	D
	10	ERDH board trouble	D
	11	ERDH ASIC error	D
	12	ERDH CODEC error	D
	13	ERDH flash ROM error	D
	14	ERDH RAM error	D
	15	ERDH page memory error	D
	16	ERDH SIMM error	D
	17	Rotation RAM error	D
	80	ERDH board communication trouble (Protocol)	D
	81	ERDH board communication trouble (Parity)	D
	82	ERDH board communication trouble (Overrun)	D
	84	ERDH board communication trouble (Framing)	D
	88	ERDH board communication trouble (Time-out)	D
E7	03	LSU trouble	
	04	CCD white level trouble	
	05	CCD black level trouble	
F5	02	Copy lamp error	
F6	00	FAX board communication trouble	A
	10	FAX board trouble	A
	80	FAX board communication trouble (Protocol)	A
	81	FAX board communication trouble (Parity)	A
	82	FAX board communication trouble (Overrun)	A
	84	FAX board communication trouble (Framing)	A
	88	FAX board communication trouble (Time-out)	A
F9	00	Printer PWB communication trouble	C
	10	Printer PWB trouble	C
	80	Printer PWB communication trouble (Protocol)	C
	81	Printer PWB communication trouble (Parity)	C
	82	Printer PWB communication trouble (Overrun)	C
	84	Printer PWB communication trouble (Framing)	C
	88	Printer PWB communication trouble (Time-out)	C
H2	00	Thermistor open detection	
H3	00	Heat roller abnormally high temperature	
H4	00	Heat roller abnormally low temperature	
L1	00	Mirror base feed trouble	
L3	00	Mirror base return trouble	
L4	01	Main motor lock	
	10	Job separator motor abnormality	A
L6	10	Polygon motor lock	
L8	01	Zero cross pulse (FW) trouble	
U2	04	EEPROM serial communication error	
	11	Counter check sum error	
	12	Adjustment value check sum error (EEPROM)	
U3	29	Mirror base home position error	
U9	00	Operation control PWB communication trouble	
	80	Operation control PWB communication trouble (Protocol)	
	81	Operation control PWB communication trouble (Parity)	
	82	Operation control PWB communication trouble (Overrun)	
	84	Operation control PWB communication trouble (Framing)	
	88	Operation control PWB communication trouble (Time-out)	
U95		Operation control PWB connection error	
U99		Operation control PWB connection error	

Remark:
- A: Not used
- B: Only AL-1620/1621 and AL1650/1670
- C: Only AL-1640/1650/1670
- D: Only AL-1670

[8] INSTALLING THE PRINTER DRIVER

To use this printer with your computer, you must install the printer driver.

Install the printer driver using the supplied SHARP Software CD-ROM. This kit is supplied with the following printer drivers:

- PCL6 for Windows 95/98
- PCL6 for Windows NT 4.0
- PCL5e for Windows 95/98
- PCL5e for Windows NT 4.0

Note:
- It is recommended that you install the PCL6 printer driver. If you have a problem printing from older software using the PCL6 driver, remove it and install the PCL5e driver.
- The printer driver data in the CD-ROM can be copied to floppy disks.
  1. Double-click “My Computer”, “AL-1600” and “Makedisk”.
  2. Double-click “Makedisk.exe”.
  3. Follow the on-screen instructions.

Before installation, make sure that:

- You read the README.TXT file which is contained on the SHARP Software CD-ROM. This file contains the information and restrictions for using the printer.
- The printer is connected properly with the computer or network.
- The printer is loaded with paper.
- The printer is turned on and on-line (the ON LINE light is lit).
- You quit all application software that is running on your computer.
- Your computer meets the following hardware and software requirements:

Computer Type	IBM PC/AT or compatible computer equipped with a bi-directional parallel interface and CD-ROM drive	
Operating System	Windows 95, Windows 98, Windows NT 4.0	
CPU	Windows 95:	486SX or better
	Windows 98:	486DX/66MHz or better (Pentium or better is recommended.)
	Windows NT 4.0:	486/25MHz or better
RAM	Windows 95:	8MB or more (12MB or more is recommended.)
	Windows 98:	16MB or more (32MB or more is recommended.)
	Windows NT 4.0:	16MB or more

This procedure uses the following drive name in examples:

Drive R: CD-ROM drive (holds the CD-ROM containing the printer drivers)

Change the drive name as required according to your environment.

1. Installing onto Windows 95

This printer is compatible with plug & play. If your computer is incompatible with plug & play, refer to “Installing onto Windows 95/98 without Using the Plug & Play Function”.

1) Turn the computer on and start Windows 95.

   Note: Depending on which version of Windows you are using, the display examples in this step may differ from those on your system.

- Either the “Update Device Driver Wizard” window or the “New Hardware Found” window may appear automatically.

Note: If neither the “Update Device Driver Wizard” window nor the “New Hardware Found” window appear, refer to “Installing Windows 95/98 without Using the Plug & Play Function”.

- If the “Update Device Driver Wizard” window appears, click the [Next] button and proceed to step 2).

- If the “New Hardware Found” window appears, perform the following steps:

<1> Choose “Driver from disk provided by hardware manufacturer” and click the [OK] button.

<2> When the “Install From Disk” window appears, insert the SHARP Software CD-ROM into the CD-ROM drive, type R:\English\WinXX and click the [OK] button.

Note: In this step the PCL6 printer driver is installed automatically. If you want to install the PCL5e printer driver, refer to "Installing onto Windows 95/98 without Using the Plug & Play Function".

<3> Proceed to step 5).

2) Search for the printer driver by clicking [Other Locations...] button.
3) Insert the SHARP Software CD-ROM into the CD-ROM drive, type R:\WinXX and click the [OK] button.
4) After Windows finds the printer driver, click the [Finish] button to continue the installation.

   Note: In this step the PCL6 printer driver is installed automatically. If you want to install the PCL5e printer driver, refer to “Installing onto Windows 95/98 without Using the Plug & Play Function”.

5) Set the printer name.

<1> If you want to change the printer name, enter a new name in the space provided.

<2> If the program displays, “Do you want your Windows-based programs to use this printer as the default printer?”, check “Yes”.

<3> Click the [Next] button.

6) Print a test page by clicking the [Finish] button.

Note: If you check “No” and click the [Finish] button, the printer does not print a test page after the installation.

- The printer driver installation begins.

- If the “Insert Disk” window appears, perform the following steps:

<1> Click the [OK] button.

<2> When the “Copying Files” window appears, type R:\WinXX and click the [OK] button.

7) When the test page is printed properly, click the [Yes] button.

- The printer is ready for printing.

2. Installing onto Windows 98

This printer is compatible with plug & play. If your computer is incompatible with plug & play, refer to “Installing onto Windows 95/98 without Using the Plug & Play Function”.

1) Turn the computer on and start Windows 98.

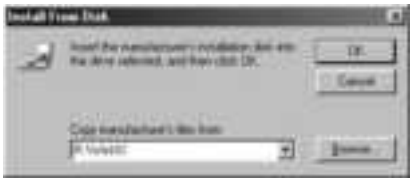
- The “Add New Hardware Wizard” window appears automatically, click the [Next] button.

Note: If the “Add New Hardware Wizard” window does not appear in this step, refer to “Installing onto Windows 95/98 without Using the Plug& Play Function”.

2) Display a list of all the printer drivers by checking “Display a list of all the drivers in a specific location, ...” and clicking the [Next] button.

3) Click the [Have Disk...] button.

4) Insert the SHARP Software CD-ROM into the CD-ROM drive, type R:\WinXX, and click the [OK] button.



5) Choose the appropriate printer driver from those listed below and click the [Next] button.

- PCL6 Printer Driver: SHARP AL-1600 Series PCL6
- PCL5e Printer Driver: SHARP AL-1600 Series PCL5e

Note: It is recommended that you install the PCL6 printer driver. If you have a problem printing from older software using the PCL6 driver,remove it and install the PCL5e driver.

6) After Windows finds the printer driver, click the [Next] button to continue the installation.

7) Set the printer name.

<1> If you want to change the printer name, enter a new name in the space provided.

<2> If the program displays, "Do you want your Windows-based programs to use this printer as the default printer?", check "Yes".

<3> Click the [Next] button.

8) Print a test page by clicking the [Finish] button.

Note: If you check “No” and click the [Finish] button, the printer does not print a test page after the installation.

- The printer driver installation begins.

9) When the test page is printed properly, click the [Yes] button.
   - The printer is ready for printing.

3. Installing onto Windows 95/98 without Using the Plug & Play Function

Computers using Windows 95 or Windows 98 that are compatible with plug & play can install the printer driver automatically. However, if your computer is incompatible with plug & play, follow the procedure in this section.

The following steps use Windows 98 in display examples.

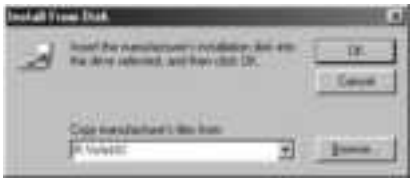
1) Turn the computer on and start Windows 95/98.
2) Click the Start menu, point to “Settings”, and choose “Printers”.
3) When the “Printers” window appears, double-click the “Add Printer” icon.
4) Click the [Next] button.
5) If the screen for choosing the connection method appears, choose "Local printer" or "Network printer" and click the [Next] button.

   Note: This screen appears only when the computer is connected to a network.

   - If you choose “Network printer” you must specify a network path or queue name.
     Contact your network administrator for details.
     The following steps use the example of a local printer.

6) Click the [Have Disk...] button.

7) Insert the SHARP Software CD-ROM into the CD-ROM drive, type R:\WinXX, and click the [OK] button.



8) Choose the appropriate printer driver from those listed below and click the [Next] button.
   - PCL6 Printer Driver: SHARP AL-1600 Series PCL6
   - PCL5e Printer Driver: SHARP AL-1600 Series PCL5e

   Note: It is recommended that you install the PCL6 printer driver. If you have a problem printing from older software using the PCL6 driver,remove it and install the PCL5e driver.

9) Choose the port and click the [Next] button.

10) Set the printer name.
    <1> If you want to change the printer name, enter a new name in the space provided.
    <2> If the program displays, “Do you want your Windows-based programs to use this printer as the default printer?”, check “Yes”.
    <3> Click the [Next] button.

11) Print a test page by clicking the [Finish] button.

    Note: If you check “No” and click the [Finish] button, the printer does not print a test page after the installation.

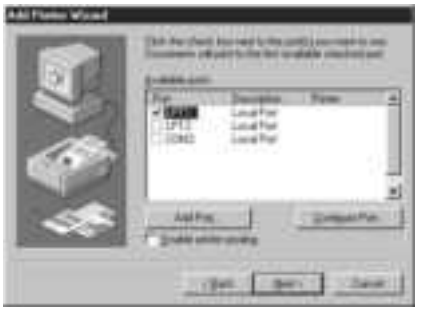
    - The printer driver installation begins.

12) When the test page is printed properly, click the [Yes] button.
    - The printer is ready for printing.

4. Installing onto Windows NT 4.0

1) Turn the computer on and start Windows NT.
2) Click the Start menu, point to “Settings”, and choose “Printers”.
3) When the “Printers” window appears, double-click the “Add Printer” icon.
4) Choose “My Computer” or “Network printer server” and click the [Next] button.
   - The following steps use “My Computer” as an example. For more information about using this printer as a network printer, refer to the Windows NT 4.0 networking documentation.

5) Check the checkbox for the port you are using and click the [Next] button.



6) Click the [Have Disk...] button.

7) Insert the SHARP Software CD-ROM into the CD-ROM drive, type R:\WinNT and click the [OK] button.

8) Choose the appropriate printer driver from those listed below and click the [Next] button.
   - PCL6 Printer Driver:SHARP AL-1600 Series PCL6
   - PCL5e Printer Driver:SHARP AL-1600 Series PCL5e

   Note: It is recommended that you install the PCL6 printer driver. If you have a problem printing from older software using the PCL6 driver,remove it and install the PCL5e driver.

9) Set the printer name.
   <1> If you want to change the printer name, enter a new name in the space provided.
   <2> If the program displays, “Do you want your Windows-based programs to use this printer as the default printer?”, check “Yes”.
   <3> Click the [Next] button.

10) Make the appropriate settings for your environment.
   - When using print sharing, choose “Shared” and enter a share name. If necessary for your environment, select Windows 95 from the list of operating systems.
   - If you are not using shared printing, choose “Not shared”.

After making the settings on this screen, click the [Next] button.

11) Print a test page by clicking the [Finish] button.
   Note: If you check “No” and click the [Finish] button, the printer does not print a test page after the installation.
   - The printer driver installation begins.

12) When the test page is printed properly, click the [Yes] button.
   - The printer is ready for printing.

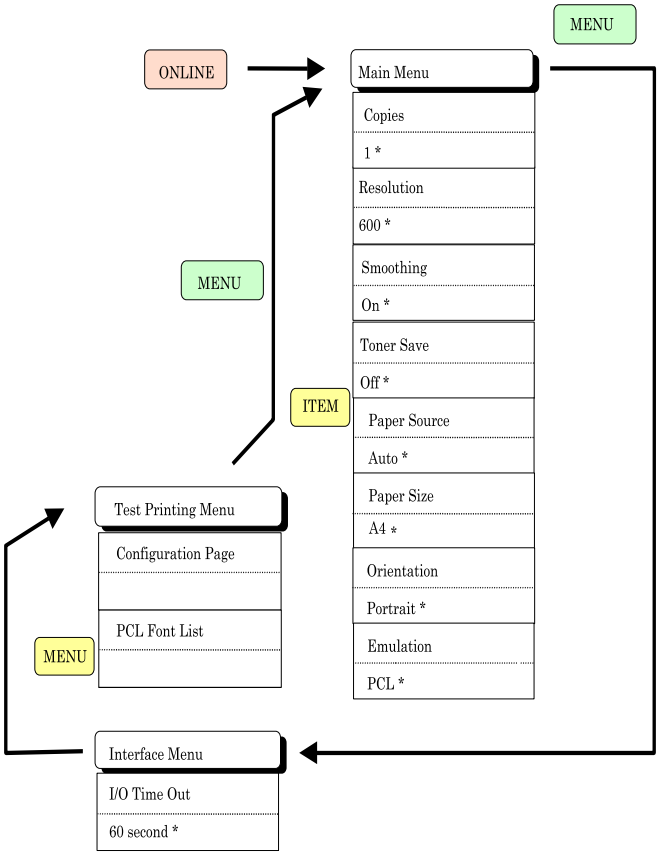
5. Changing Printer Configuration Settings

After installing the printer driver use the procedure in this section to change the printer configuration settings. Also refer to the print driver help for more information.

1. Click the Start menu, point to “Settings”, and choose “Printers”.
2. Right-click the appropriate printer and choose “Properties” fromthe menu.
3. Click the Configuration tab and change the printer settings.

[9] SETTING AND ADJUSTMENTS

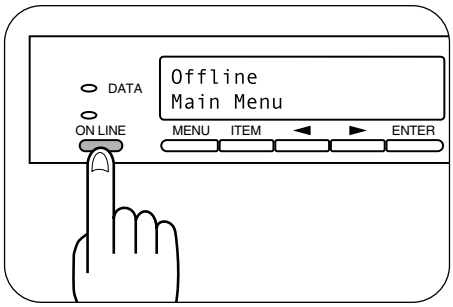
1. Configuration setting



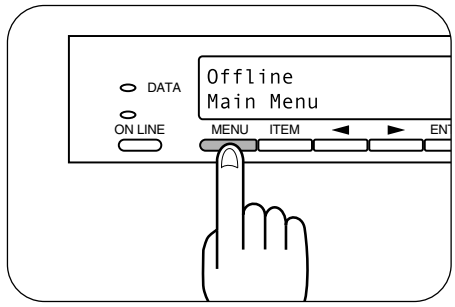
(Basic Menu Setting Procedure)

Note: The menus and items displayed may be different depending on the optional functions installed.

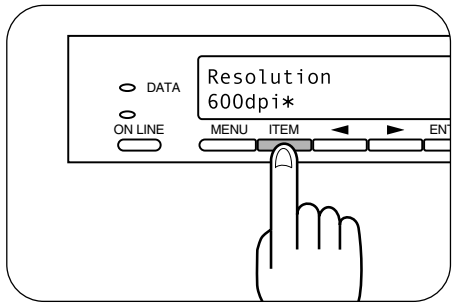
1) When the printer is not in use, press the ON LINE key to put the printer off-line.



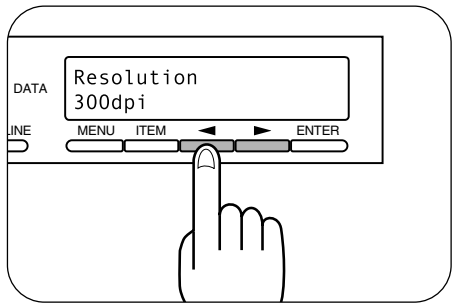
2) Press the MENU key repeatedly until the required menu appears.



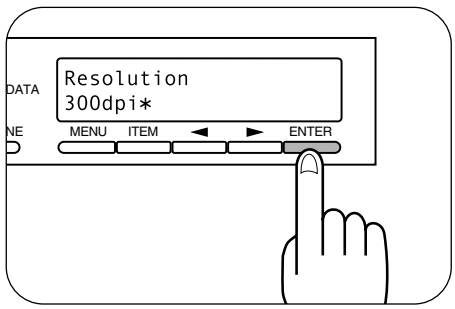
3) Press the ITEM key repeatedly until the required item appears.



4) Press the Left or Right arrow key to change the setting.
   - The current value is marked with an asterisk (*).



5) After choosing the required value, press the ENTER key.
   - The new value is registered.



A. Main Menu

Item	Possible Settings	Description
Copies	1 ~ 999	Sets how many copies to print.
Resolution	600dpi ∗ 300dpi	Sets the printing resolution.
Smoothing	On ∗ Off	Sets whether smoothing is done or not. This function improves the appearance of printed documents by smoothing the angles and curves of images. This allows printing at a higher apparent resolution. For example, if the printer is set to 600dpi, resolution equivalent to 1200dpi can be achieved. When printing image data, you may need to select "Off" to achieve best results.
Toner Save	On Off ∗	Sets whether toner save mode is in effect or not. This function prints slightly fainter to save toner. This item is different from the copier “toner save mode”.
Paper Source	Auto ∗ Tray 1 Tray 2∗ Bypass Tray	Sets the tray used for paper feeding. Setting to “Auto” automatically selects the paper tray loaded with the paper of the size specified in the “Paper Size” item. ∗ The available settings reflect the installed trays.
Paper Size	A3 B4 A4∗ B5 A5 Ledger Legal Letter∗ Executive Folio Invoice Foolscap COM-10 DL C5	Sets the size of the paper where data will be printed. If this size is different from the paper size present in the tray, the size set on the operation panel takes precedence. ∗ Depending on where the printer was purchased, the default value is either A4 or Letter.
Orientation	Portrait ∗ Landscape	Sets the page orientation for printing. Specify “Portrait” to print the paper with its long side (longer edge) vertical. Specify “Landscape” to print the paper with its long side (longer edge) horizontal.
Emulation	PCL ∗ HEX	Specifies the printer language used.

C. Interface Menu

Item	Setting Choice	Description
I/O Time Out	1 second : 60 second ∗ : 999 second	Sets I/O time-out. If no data is received within the preset time, print processing is ended.

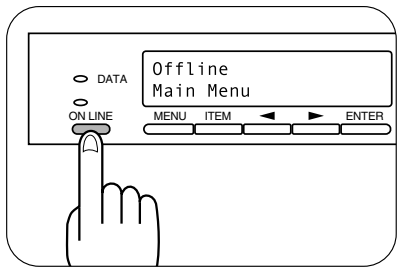
D. Test Menu

Item	Description
Configuration Page	Prints the configuration page.
PCL Font List	Prints the PCL6 font list.

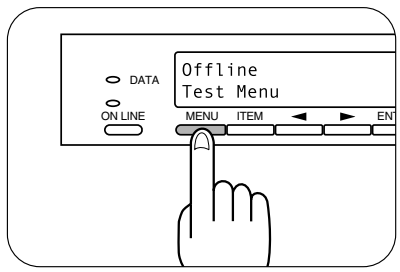
[10] CONFIGURATION REPORT AND TEST PAGE

To test print the configuration page and font list, use the following procedure:

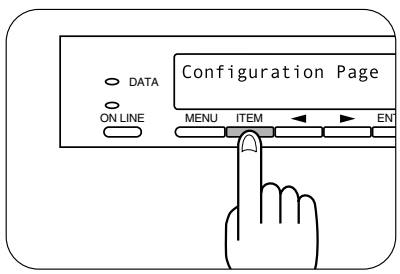
1) Press the ON LINE key to switch the printer to the offline mode.



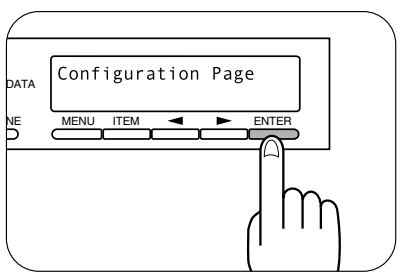
2) Press the MENU key to display the Test Menu.



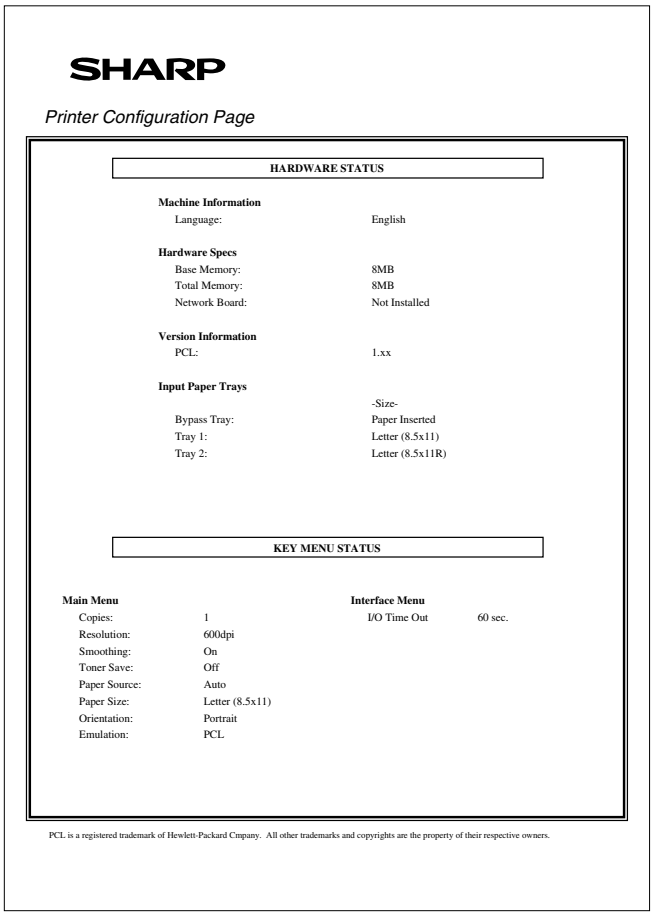
3) Press the ITEM key to display the required item.



4) Press the ENTER key.
The test page prints.



1. Samples



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Printer Configuration Page

HARDWARE STATUS

Machine Information
Language: English

Hardware Specs
Base Memory: 8MB
Total Memory: 8MB
Network Board: Not Installed

Version Information
PCL: 1.xx

Input Paper Trays
-Size-
Bypass Tray: Paper Inserted
Tray 1: Letter (8.5x11)
Tray 2: Letter (8.5x11R)

KEY MENU STATUS

Main Menu
Copies: 1
Resolution: 600dpi
Smoothing: On
Toner Save: Off
Paper Source: Auto
Paper Size: Letter (8.5x11)
Orientation: Portrait
Emulation: PCL

Interface Menu
I/O Time Out 60 sec.

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2. Items and contents

A. Hardware status

(Machine information)

a. Language
Value: (English/French/German/Italian/Dutch/Spanish/Swedish)
Example: English
Default: Depends on the Destination setting
Description: Depends on the LCD display, the configuration page, and the font list language.

(Hardware specifications)

a. Base memory
Value: 8MB
Example: 8MB
Default: 8MB
Description: Indicates the printer PWB base memory capacity.

b. Total memory
Value: 8MB
Example: 8MB
Default: 8MB
Description: Indicates the printer PWB total memory capacity, which is the total of the base memory and the option memory.

c. Network board
Value:
Example: Not Installed.
Default: Not Installed.
Description: Ubducates the network board installation status.

(Firmware version)

a. PCL6
Value: #.##
Example: 1.00
Default: Depends on the printer firmware version.

Available Paper Size

Appearance on Configuration Page	Description
Letter (8 1/2 × 11)	Letter/Long Edge Feed
Letter (8 1/2 × 11R)	Letter/Short Edge Feed
Legal (8 1/2 × 14)	Legal/Short Edge Feed
Ledger (11 × 17)	Ledger/Short Edge Feed
Executive (7 1/4 × 10 1/2)	Executive/Short Edge Feed
Invoice (5 1/2 × 8 1/2)	Invoice/Long Edge Feed
Foolscap (8 1/2 × 13)	Foolscap/Short Edge Feed
A4	A4/Long Edge Feed
A4R	A4/Short Edge Feed
B5	B5/Long Edge Feed
B5R	B5/Short Edge Feed
B4	B4/Short Edge Feed
A3	A3/Short Edge Feed
A5	A5/Long Edge Feed
A6	A6/Short Edge Feed
(Unknown)	Other size (EXTRA)
(No Paper)	No paper available on this tray.
(No Tray)	There is a problem with this tray.
(Tray Open)	This tray is opened (except Bypass-Tray) or Tray is lifting up.

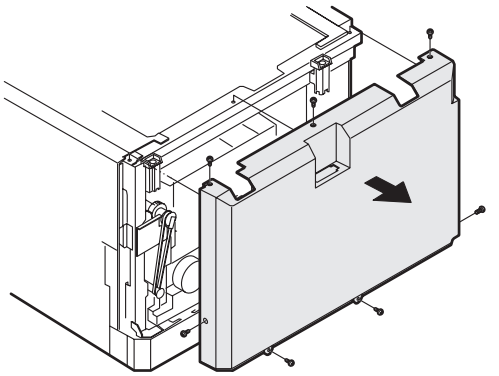
a. Manual paper feed tray
Value: (Suitable paper size)
Example: Letter (8 1/2 × 11")
Default: Depends on the size of paper set on the manual paper feed tray.
Description: Indicates the size of paper set on the manual paper feed tray. Depends on the paper size detected on the manual paper feed tray. “Unclear” means that the paper size is not detected. If there is no paper, no print is made here.

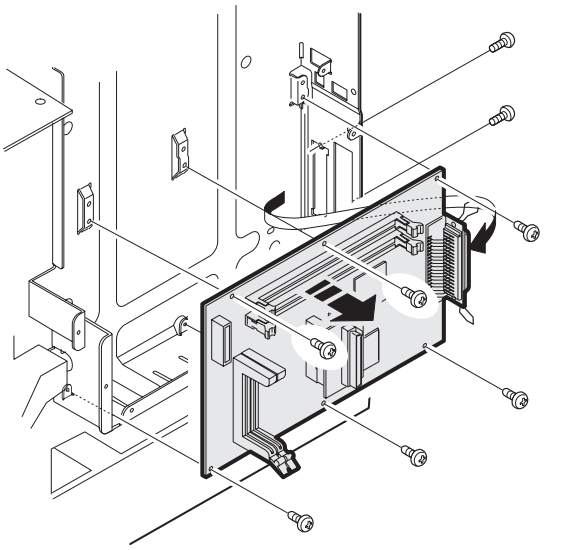
b. Tray 1, tray 2
Value: (Suitable paper size)
Example: Letter (8 1/2 × 11")
Default: Depends on the paper tray configuration.
Description: Indicates the paper size configuration of tray 1, tray 2

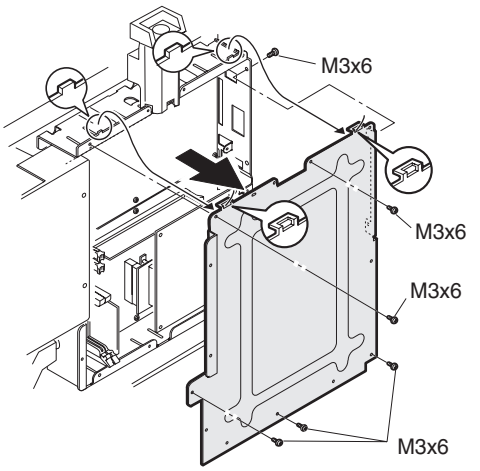
[11] Disassembly and assembly

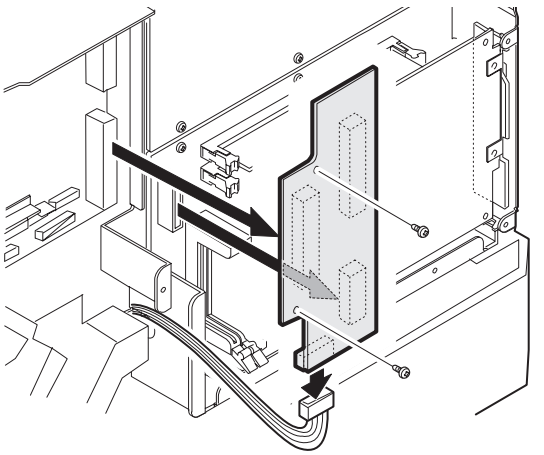
A	Printer Board
B	E-sort PWB (only AL-1670)

A. Printer board

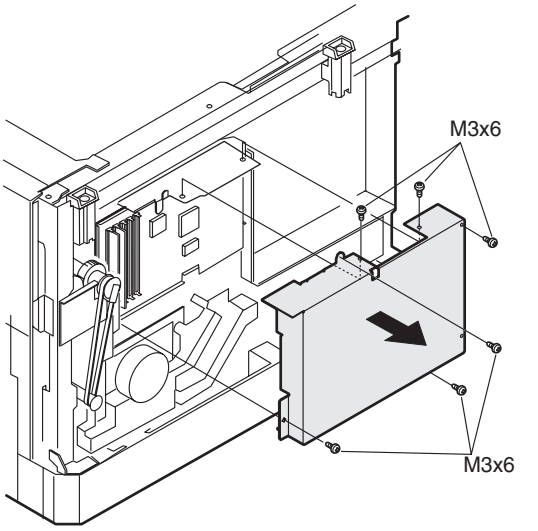


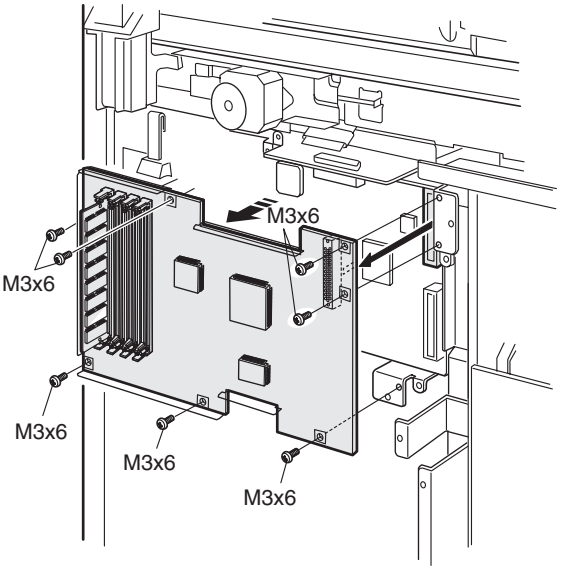






B. E-sort PWB <Only AL-1670>





[12] FLASH ROM VERSION UP PROCEDURE

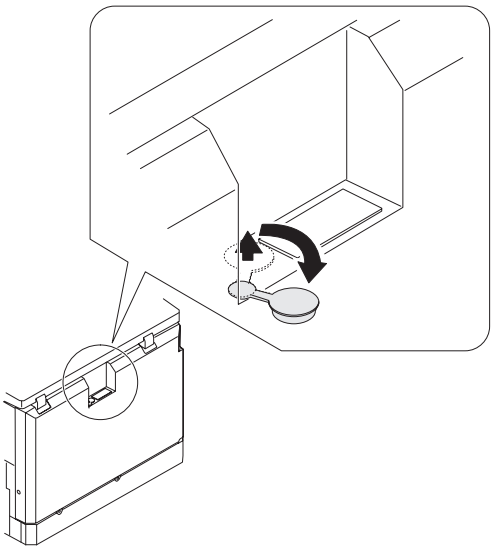
1. MCU/E-SORT

A. Tool

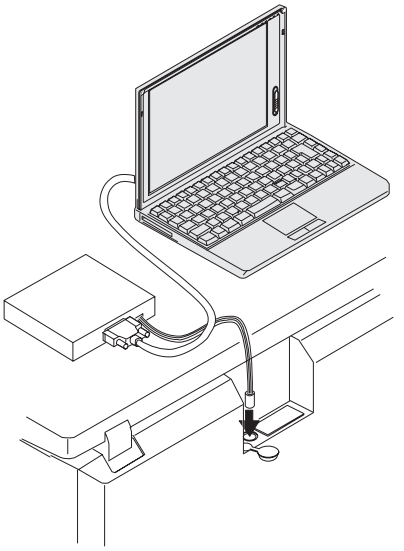
- Machine
- PC
  Operates on Windows 95/98.
- Level converter (UKOG-0002QSZZ) (with serial cable)
- Level converter (UKOG-0003QSZZ) (without serial cable)
- (Serial cable)

B. Procedures

1) Connect the PC and the level converter, and start Windows.
2) Turn off the power of the machine.
3) Remove the cap at the rear of the machine.



4) Connect the serial connector.



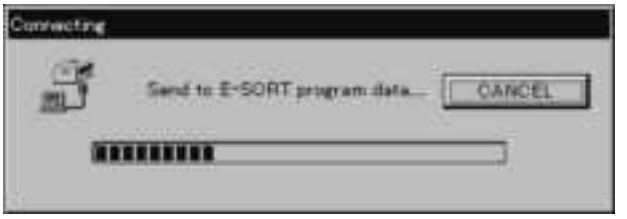
5) Turn on the power of the machine.
   - The machine enters the download mode. (All LED lamps are turned off. The machine accepts no key operations.)
6) Execute “mainte-Vxxx.exe” on the PC.

∗ Use “mainte_vxxx.exe” ver.1.04 or later.

7) Communication port/communication speed setting
   - Select “Comport” in the option menu, and select the most suitable item with consideration of PC environment, work time, etc.

8) Select “Download the Program Data” in the SPECIAL folder, and transfer data.

9) Select the data for MCU to be transferred.



10) Select the data for the electronic sort board to be transferred.
    * For the models other than the AL-1670, go to procedure 11).

11) After transfer of data, turn off the machine and disconnect the connector.

Reference: If the power is turned off during the procedure or in case of a communication error, resume the procedure from 2).

2. Printer Board

A. Cases where flash memory rewriting is required

In the following cases, the program in the printer control PWB flash memory must be rewritten.

1) When a bug or other error is found
2) Data stored in the flash memory is destroyed or deleted.
3) When the flash memory is replaced.

B. Necessary tools

1) Computer (PC) <Operates on MS-DOS.>
2) Parallel cable
3) Program data file (xxx.BIN)

C. Procedure

1) Print the configuration list to check the firmware version.
   Use the operation panel of the copier to perform the following procedure.
   ONLINE <off line> → MENU <Test Printing Menu> → ITEM <Configuration Page> → ENTER <The test page prints>
2) Connect the PC and the copier with the parallel cable.
3) Turn on the power
4) Execute SIM 67-14.
   "Erase Flash Data?" is displayed on the LCD.
5) Press the ENTER key on the copier's operation panel.
   "Now Erasing" is displayed on the LCD.
6) After deletion of data, "Please Send Data" is displayed on the LCD and the machine enters the ready state for data input.
7) Download the program file.

(Note) Never turn off the power during download.
   Set the PC to DOS mode → Check that the display shows READY. → Then type COPY␣ /B␣ xxx.BIN LPT1:
   and press the enter key.
   (␣: space)

8) The machine enters the data reception mode.
   While "Writing" is displayed on the LCD, data are written into the flash ROM.
9) When data reception and data writing into the flash ROM are completed, the SUM check is automatically performed.

(Note) In case of an error, "Sum check Error" is displayed.
   Turn off the power once, and repeat the procedures from 3).

10) If there is no problem on the result of the SUM check, "Complete" is displayed on the LCD.
11) Turn off/on the power to print the configuration page with the above procedures, and check the firmware version.
12) Perform printing on the PC side and check that printing is performed normally.

AL-1670

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